 INDIAN SCHOOL AL WADI AL KABIR

Worksheet, 2021-22

|  |  |  |
| --- | --- | --- |
| **Class: XII** | **SUB: INFORMATICS PRACTICES** | **Date of Completion:** |
| **Worksheet No:1** | **TOPIC : Python Pandas- Series and Dataframe** |   |

1. What data type is the object below ?

 L = [1, 23, ‘hello’, 1].

 a) list b) dictionary c) array d) tuple

2. Consider the following python code and write the output :

 import pandas as pd

 K=pd.Series([2,4,6,8,10])

 s = pd.Series(K)

 print (s)

 3. Write attributes for the following:

 i. To find the number of elements in a series S

 ii. To display the values of a series as a ndarray

4. Hitesh wants to display the last four rows of the dataframe df and has written the following code :

 df.tail()

 But last 5 rows are being displayed. Identify the error and rewrite the correct code so that last 4

 rows get displayed.

5. Given a data frame namely Fruits is given below(fruit names are row labels)

 Color Count Price

Apple Red 3 120

Apple Green 9 110

Pear Red 25 125

Pear Green 26 150

Lime Green 99 70

 Write code statement to

 (a) Find all rows with label “Apple”. Extract all columns

 (b) List only the columns Count and Price using loc

 (c) List only rows with labels ‘Apple’ and ‘Pear’ using loc

6. i. Create a series S with the following list L : [5,10,15,20,25]. Write a statement to assign the

 series as a,b,c,d,e index explicitly

 ii. Display the values which are greater than or equal to 20.

 iii. Display the values 15 and 20 using iloc .

 iv. Display the values 10 and 15 using loc.

 v. delete the value 15 from the series S.

7. Write a program to display which sections made a contribution more than Rs.5500/-.Series

 Object s11 stores the charity contribution made by each section.

 A 6700

 B 5600

 C 5000

 D 5200

8. Write a python code to create a dataframe with appropriate headings from the list given below :

 ['S101', 'Amy', 70], ['S102', 'Bandhi', 69], ['S104', 'Cathy', 75], ['S105', 'Gundaho', 82]

9. The name of the DataFrame is Cdf

 

 a. Write the Python command to change the column names of the dataframe Cdf in as Age to

 S\_Age, Score to FM\_Score.

 b. Write the Python command to display the last 3 records of the dataframe Cdf

10. Given the following Series P1 stores the marks made by each section:

 P1

 a 95

 b 90

 c 75

 d 80

 Write the command to display the sections made a mark greater than 90

11. Write the output of the following code:

 import pandas as pd

 a=pd.Series([68,35,90,95])

 b=pd.Series([45,77,93])

 student={"English":a,"Hindi":b}

 df=pd.DataFrame(student)

 print(df)

 12. Given a dataframe Student as shown below :

|  |  |  |
| --- | --- | --- |
|  | Age  | Marks  |
| Himanshu  | 20  | 88  |
| Riya  | 19  | 92  |
| Govind  | 22  | 95  |
| Shubham  | 21  | 70  |
| Dorris  | 18  | 84  |

 Write statements to do the following :-

 a. To Change the index column as Age.

 b. List student (student names are row labels) with marks more than 90.

13. Write a program in Python Pandas to create the following DataFrame Student :

|  |  |  |  |
| --- | --- | --- | --- |
|  | NAME  | TERM1  | TERM2  |
| 0  | Preeti  | 230  | 450  |
| 1  | Asha  | 315  | 300  |
| 2  | Renu  | 460  | 374  |
| 3  | Vinay  | 354  | 410  |

 Perform the following operations on the DataFrame :

 1) Add marks of both the terms of a Student and assign to column “Total”

 2) Display the rows whose TERM1 marks greater than 400.

 3) Display the DataFrame.

14. Consider a given Series , SR:

|  |  |
| --- | --- |
| a | 50 |
| b | 40 |
| c | 55 |
| d | 45 |

 1. Write command in Python Pandas to update the index to E,F,G,H

 2. Write command to delete the first element.

15. Consider the following DataFrame, stud

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Id | Name | Class | Section | Rank |
| S11 | Arunima | 11 | A | 1 |
| S13 | Rahul | 12 | A | 2 |
| S34 | Baadsha | 11 | B | 1 |
| S56 | Sanjay | 12 | B | 2 |

 Write commands to :

 i. Add a new row with values S57, Neha, 12, B, 2

 ii. Remove the Rank Column

16. Write ouput for the given python code:

import pandas as pd

L1=[10,20,30,40,50]

S1=pd.Series([10,20,30,40,50])

S2=pd.Series(25,index=[0,1,2,3,4])

S3=S1\*S2

print("L1\*2=",L1\*2)

print("S1\*2=",S1\*2)

print("S1\*S2=",S3)

17. Given are two objects, a list object namely lst1 and a Series object namely A, both are having

 similar values i.e. 2, 4, 6, 8,10. Mr. Singh is trying to run the following commands. Will these

 commands run successfully or not. Justify your answer.

 a. print(lst1\*\*2)

 b. print(A\*\*2)

18. Consider the following dataframe ndf as shown below :

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Col1  |  Col2  |  Col3  |  Res  |   |
|  T1  |  62.893165  |  100.0  |  60.00  |  True  |   |
|  T2  |  94.734483  |  100.0  |  59.22  |  True  |   |
|  T3  |  49.090140  |  100.0  |  46.04  |  False  |   |
|  T4  |  38.487265  |  85.4  |  58.60  |  False  |   |

Write the commands for the followings:-

a. List only the columns Col1 and Col3.

b. List only the rows with labels ‘T2’ and ‘T4’.

c. To compute sum of Col1 and Col3.

19. Consider the following DaraFrame “Emp”,

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Adm\_No  |  Name  |  Class  |  Stream  |  Age  |  Total\_Marks  |  Result  |   |
|  21234  |  AKASH  |  XII  |  SCIENCE  |  17  |  486  |  PASS  |   |
|  23125  |  SANIYA  |  XI  |  ARTS  |  16  |  453  |  PASS  |   |
|  24325  |  ADITYA  |  XII  |  ARTS  |  17  |  123  |  FAIL  |   |

a. Remove the column Result from the DataFrame.

b. Add a new row into the dataframe with values as (25512, DRUVA, XI, COMMERCE, 16, 400)

20. Write a program in Python Pandas to create the following DataFrame Stationary from Series:

|  |  |  |  |
| --- | --- | --- | --- |
| P\_ID  |  PROD\_NAME  |  PROD\_PRICE  |  PROD\_QTY  |
|  P01  |  Notebook  |  85  |  500  |
|  P02  |  Pencil Box  |  76  |  200  |
|  P03  |  Water Bottle  |  129  |  50  |
|  P04  |  School Bag  |  739  |  70  |

Perform the following operations on the DataFrame :

a. Transfer the Dataframe to a csv file named “final.csv”.

b. Add a column discount with value of 5% for all items in the DataFrame .

c. Display the final Dataframe updated.